Computation/AIS
Software Engineering Newsletter

Nov/Dec 95

Events in Review

October 9

Rick Ball, from Richard Ball and Associates in Canada, held a Maintenance Seminar. Some of the feedback included: " Wish my group leader would have heard it," "Mr. Ball made s/w maintenance interesting," and " He made a strong case for its importance." Most attendees were very impressed with this seminar.

October 30 and 31

Roger Bate from the Software Engineering Institute in Pittsburgh, PA gave a seminar on the Systems Engineering Capability Maturity Model and Software Engineering Capability Maturity Model. This Seminar was sponsored by the Systems Engineering Technology Plank and organized by the STC.

November 9

The STC and the Federal Business Council hosted a Software Testing Expo for all of LLNL. There were over 130 in attendance; most were very pleased with the expo, however some felt it was not specific enough for their needs. We are encouraged to hold another.

November 17

Kerry Zallar who is on staff with Pacific Bell came out to give a presentation on managerial aspects of automated testing, and also on aspects related to the nitty gritty work of Software Testing.

STC Announcement

Warren Persons has accepted the position of Software Technology Center Manager. We would like to welcome him.

We would also like to say thank you one last time to Jeff Young who was the Acting STC Manager over the past year. Jeff took a position in Tasmania, Australia for two years.

News??

We would like to hear from you. Please submit articles, comments, stories, etc., to STC, L-307, or e-mail stc@llnl.gov, for the next issue of the *Software Engineering Newsletter*. Deadline is **January 10,1996**. Thanks

Inside this issue:

The Software Engineering Laboratory's Guidelines for Establishing a Metrics Program

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The Software Engineering Laboratory's (NASA Goddard), *Software Metrics Guidebook* contains the following guidelines for establishing a metrics program:

1. Goals

Determine and clarify what is to be accomplished through metrics and understand how to apply metrics to the goals.

Since the results of a metrics program will be used differently at different organizational levels, all participants should be involved in defining the goals.

Set expectations:

Prepare people for the changes and initial problems in order to enhance potential support and acceptance.

Plan to achieve an early success:

Select a project with the objective of early benefits. Since the start-up of a metrics program can be significant, an early return on that investment will help convince managers and project personnel alike of the benefits of their efforts.

2. Scope of the Metrics Program

Determine which projects should be included in the metrics program, what phases of the lifecycle should be included, and what elements of the staff should be included.

Focus locally:

Limit the organizational scope, so that metrics processes and data definitions are clearly understood.

Start small:

Limiting the number of projects and restricting the portions of the lifecycle to those with well-defined processes reduces the impact on and resistance from personnel.

3. Roles, Responsibilities, and Structure

Provision of Data:

Development personnel are responsible for only providing project data.

Analysis of Data:

Analysis and packaging personnel design data collection forms and analyze the project data.

Maintenance of Data:

Technical support personnel collect project data from developers and enter and maintain it in the historical database.

4. Selecting the Measures

Make sure the measures apply to the goals. Keep the number of measures to a minimum. Don't ask developers for measures that are not useful. Don't generate reports that provide no additional insight.

5. Cost of Metrics

The cost data presented here is based on 17 years of experience with organizations ranging in size from 100 to 500 persons.

Budget for the cost of the metrics program:

A metrics program must be undertaken with the expectation that the returns will be worth the investment.

The cost of metrics should not add more than 2 percent to the software development effort

The data processing element (technical support) of the metrics program may cost from 3 to 7 percent of the total development budget.

The cost of the analysis element of the metrics program ranges from 5 to 15 percent of the total project budget.

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1995 Software Engineering Institute Symposium (Trip Report)

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Substituting for Jeff Young, I attended the Software Engineering Symposium in Pittsburgh, PA. The conference is held annually at the Software Engineering Institute (SEI) and was attended by over 1,000 software managers and engineers from industry, government, and academia. The SEI was established by Congress in 1984, with a goal of improving the practice of software engineering. The conference highlighted the fact that software engineering processes share many common areas of interest among industry, government and the academic communities. The SEI, although initially a totally government sponsored organization, is after 11 years more evenly funded by commercial and government organizations. This allows for areas of common interest to be mutually addressed by all three of the communities.

A keynote speaker, Colin Crook the Chief Technology Officer from Citicorp, surprised the audience by announcing that Citicorp had set a goal to have all 42 of its software groups operating at CMM level 3 by January 1, 1998. (They have secured the assistance of SEI in this effort). He also indicated that in the fusion of business with technology, "software is the core technology and we don't yet understand it." However, he mentioned that if successful with its current software development strategy, this fusion will give Citicorp its most enabling technology.

The symposium addressed a myriad of software engineering topics, some of the major topics receiving attention were the family of Capability Maturity Models (i.e. the People Capability Maturity Model/P-CMM, the Software Engineering Capability Model/SW-CMM, the System Engineering Capability Maturity Model/SE-CMM and the Software Acquisition Capability Maturity Model/SA-CMM. A fifth CMM is in the works and is titled Integrated Product-CMM). Current documentation on the initial four CMMs is available from SEI. SEI is responsible for the generation of technical publications to report on the state of the practice in those areas they are currently investigating. These reports are available for purchase through SEI or Research Access Inc. Call the STC office at ext 3-8543, if you are interested in obtaining documentation describing a particular CMM of interest or for information on what publications are available.

The Symposium was not organized as a group of major technical tracks, as is sometimes found during software-oriented symposiums, however additional topics focused on major niche' areas such as High-Integrity Software System Assurance, Model-Based Software Engineering (i.e. building and using models of the requirements and design for a product line of software applications), Software Quality Measurements, Auditing Software-Intensive Systems, Team-Based Collaborative Software Engineering, Status of ISO's SPICE Project, Open Systems, Research Trends in Software Engineering, Integrated CASE and related topics.

Much interest was expressed by industry, government, and academia regarding the development of recent software development standards that are broadly-based and could be further tailored to individual project needs. Several emerging software development standards addressing software development methods include some of the ISO standards, as well as joint efforts by the IEEE and Electronic Industry Association (EIA).

The SEI calendar of courses and events that might be of interest are listed in the calendar of events found on page 4 in this newsletter.

Upcoming Seminars, Classes and Conferences

December

5-7   Introduction to the Capability Maturity Model
SEI, Pittsburgh (412) 268-5800

6-8   Managing Software Development with Metrics
SEI, Pittsburgh, (412) 268-5800

12-14   Defining Software Processes
SEI, Pittsburgh, (412) 268-5800

11-15   Project World
Santa Clara Convention Center and Westin Hotel
Santa Clara, CA
To register call: (617) 431-9797
email: adminpw@projectworld.com

21   Management Problems of the Technical Professional
in a Leadership Role
Holiday Inn Convention Center
Reno, NV
To register call: (800) 255-6139

January

30-31   Effective GUI Design
Holiday Inn Union Square
San Francisco, CA
To register call: (800) 767-2755
email: DCIconfl@aol.com

Software Engineering Institute

Calendar of Events:

WWW: http://www.sei.cmu.edu/SEI/
events/SEI_cal_events.html

Digital Consulting, Inc (DCI)

On-Line Catalog:

WWW: http://www.DCIexpo.com

Learning Tree International

On-Line Catalog:

WWW: http://www.lrntree.com

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